

REMARKS

This Amendment and Response to Non-Final Office Action is being submitted in response to the non-final Office Action mailed May 23, 2007. Claims 1-15 are pending in the Application.

Claims 1-15 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Claims 1, 3, 5-9, 11, and 13-15 are rejected under 35 U.S.C. §102(b) as being anticipated by Ballintine *et al.* (U.S. Patent No. 6,246,667).

Claims 2, 4, 10, and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ballintine *et al.* in view of De Girolamo *et al.* (U.S. Patent No. 7,054,558).

In response to the above rejections, Claims 1 and 8 have been amended to further clarify the subject matter which Applicants regard as the invention, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments, reconsideration of the Application is respectfully requested in view of the following remarks.

Rejection of Claims 1-15 Under 35 U.S.C. §112, First Paragraph

Claims 1-15 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, Examiner states that the limitations in Claim 1 of “wherein the line switching is performed between two nodes of the plurality of switching nodes adjacent to the failed span” and in Claim 8 of “wherein the line switch is performed between two nodes of the plurality of switching nodes adjacent to a failed span” are not described in the specification in such a way to reasonably convey to one skilled in the art that the inventor had possession of the claimed invention.

Respectfully, Applicants describe this limitation throughout the specification. In particular, Examiner should review page 6, lines 5-8, describing FIG. 2b and page 10, lines 1-2, describing FIG. 5. Applicants state in the specification, page 10, lines 1-2, “[i]n response to failed span, the switch nodes on either side of the failed span perform (530) a line switching operation as illustrated in the figures.”

Therefore, Applicants respectfully submit that the rejection of Claims 1-15 under 35 U.S.C. §112, first paragraph, has now been overcome and respectfully request that this rejection be withdrawn.

Rejection of Claims 1, 3, 5-9, 11, and 13-15 Under 35 U.S.C. §102(b) – Ballintine *et al.*

Claims 1, 3, 5-9, 11, and 13-15 are rejected under 35 U.S.C. §102(b) as being anticipated by Ballintine *et al.* (U.S. Patent No. 6,246,667).

Regarding Claims 1, 7-9, and 15, Examiner states that Ballintine *et al.* disclose a controller (220) with memory for storing channel assignment data. Applicants respectfully disagree. The controller (220) controls the adding, dropping, and bridging of signals, monitors interface status, and monitors for signal failures.¹ The controller (220) does not include a channel assignment database including which channel of a plurality of channels is assigned to the network connection on each of a plurality of spans used by the network connection.

Ballintine *et al.* use a “jumper flag” in combination with existing SONET/SDH BLSR protocols for each active tributary affected by the path degradation.² This is not a channel assignment database for which channel is used on each span for the network connection. Conventional BLSR systems do not provide channel assignments for each network connection on each span to all nodes. Applicants have amended independent Claims 1 and 8 to include the limitation that the channel assignment data includes “which channel of a

¹ U.S. Patent No. 6,246,667, Col. 5, lines 10-18.

² U.S. Patent No. 6,246,667, Col. 1, lines 46-48.

plurality of channels is assigned to the network connection on each of a plurality of spans used by the network connection.”

Conversely, since Ballintine *et al.* do not disclose channel assignment data, they do not disclose propagating the channel assignment data to the switching nodes in the optical network through one of an overhead data channel, out-of-band protocol, service channel, overlay IP network, and combinations thereof. Applicants have amended independent Claims 1 and 8 to include this limitation.

Further, as described by Ballintine *et al.* in FIG. 10, Ballintine *et al.* first perform the “jumpering” on the affected channels, and then the convention BLSR line switching.³ Applicants’ present invention first performs a line switch and then, responsive to the channel assignment data, drops the channel from the protection fiber at the egress node, i.e. Applicants do not jumper connections, but rather drop directly from protect after a line switch. Ballintine *et al.* perform jumpering of channels at both ingress and egress nodes, while applicants only drop at the egress node the affected channels from the protecting fiber directly instead of receiving it off the working fiber.

Also, Ballintine *et al.* only operate in BLSR-type ring topologies, and not for both mesh and ring topologies. Applicants have also amended independent Claims 1 and 8 to include this limitation.

Finally, Applicants have moved the limitations previously contained in the preambles of independent Claims 1 and 8 to the claim bodies.

Specifically, Claim 1 has been amended to recite:

1. A method of maintaining a network connection in an optical network, comprising:
obtaining channel assignment data including ***which channel of a plurality of channels is*** assigned to the network connection on each of ***a***

³ U.S. Patent No. 6,246,667, Col. 1, lines 60-64

plurality of spans used by the network connection, **wherein the optical network comprises a plurality of switching nodes and an egress switching node in one of a ring and a mesh topology, the plurality of spans comprising working and protecting fibers operatively connecting the switching nodes and carrying the plurality of channels;**

propagating the channel assignment data to the switching nodes in the optical network **through one of an overhead data channel, out-of-band protocol, service channel, overlay IP network, and combinations thereof;**

storing, at the switching nodes, the channel assignment data;

monitoring the optical network for a failed span and notifying the optical network in response to the failed span, wherein the switching nodes perform a line switching operation in response to the notification in order to switch the network connection to the protecting fiber, and wherein the line switching is performed between two nodes of the plurality of switching nodes adjacent to the failed span;

determining which channel the network connection utilized on the failed span based on the channel assignment data and the notification of the failed span; and

dropping the channel selected by said determining step from the protecting fiber at the egress switching node.

Likewise, Claim 8 has been amended to recite:

8. An egress optical switch node, comprising:

a channel assignment database containing **which channel of a plurality of channels is** assigned to **a network connection** on each of a plurality of spans used to the network connection; and

a controller operatively connected to said channel assignment database, said controller configuring the egress optical switch node to drop a selected channel from the protecting fiber in response to a line switch operation on **an** optical network, and wherein the line switch is performed between two nodes of **a** plurality of switching nodes adjacent to a failed span;

said controller determining the selected channel by accessing the channel assignment database and according to which channel was utilized by the network connection on a working fiber of the failed span that triggered the switch operation;

wherein the egress optical switch node is operatively connected to the optical network carrying the network connection using the plurality of channels and over the plurality of switching nodes connected by the plurality of spans including working and protecting fibers;

wherein channel assignments in said channel assignment database are propagated to said optical egress switch node through one

of an overhead data channel, out-of-band protocol, service channel, overlay IP network, and combinations thereof; and wherein the optical network comprises one a ring and a mesh topology.

Therefore, Applicants respectfully submit that the rejection of Claims 1, 3, 5-9, 11, and 13-15 under 35 U.S.C. §102(b) as being anticipated by Ballintine *et al.* (U.S. Patent No. 6,246,667) has now been overcome and respectfully request that this rejection be withdrawn, these claims being otherwise allowable.

Rejection of Claims 2, 4, 10, and 12 Under 35 U.S.C. §103(a) – Ballintine *et al.* and De Girolamo *et al.*

Claims 2, 4, 10, and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ballintine *et al.* in view of De Girolamo *et al.* (U.S. Patent No. 7,054,558).

The amendments and arguments presented above apply with equal force here.

Therefore, Applicants respectfully submit that the rejection of Claims 2, 4, 10, and 12 under 35 U.S.C. §103(a) as being unpatentable over Ballintine *et al.* in view of De Girolamo *et al.* (U.S. Patent No. 7,054,558) has now been overcome and respectfully request that this rejection be withdrawn, these claims being otherwise allowable.

CONCLUSION

Applicants would like to thank Examiner for the attention and consideration accorded the present Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

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